

61. The basic logic underlying this anticompetitive effect of the proposed merger is straightforward. In many instances, rival carriers require access from multiple ILECs in order to compete efficiently. The merger of two ILECs increases their incentives and ability to foreclose access to competing carriers because it allows each ILEC to capture the anticompetitive benefits that spillover to the other ILEC.

62. When a competing carrier's ability to serve customers depends upon its ability to obtain efficient access arrangements at reasonable prices from multiple ILECs, the degradation, delay, or denial of access in one ILEC's region may weaken the competing carrier in the region of another ILEC. Because of these multi-market effects, one ILEC's exclusion of competitors from efficient access will create anticompetitive benefits for other ILECs. For example, when SBC raises the cost of access to the IXCs, CLECs or CSCs in its region, SBC's foreclosure action may weaken the rivals' ability to offer services in Ameritech's region as well. If so, Ameritech derives an anticompetitive benefit from SBC's exclusionary conduct. Of course, before the merger, SBC would not take this spillover benefit to Ameritech into account. However, after the merger, SBC will take this spillover benefit accruing to Ameritech into account. As a result of internalizing these spillovers, SBC's incentives to raise rivals' costs would be increased. Similarly, the merger would raise the merged entity's incentives to engage in exclusionary behavior in Ameritech's region.

63. Thus, this analysis predicts that the merger would lead both SBC and Ameritech to search for new methods to exclude competitors and intensify their exclusionary conduct.

This may mean more significant denials of access by both divisions of the merged entity, further delays in granting access, and lower quality access than would have been provided absent the merger.⁵² The fact that SBC and Ameritech may have incentives to exclude without the merger does not alter this conclusion. Worsened incentives will mean more exclusion as each division is willing to undertake a greater risk of regulatory sanctions in return for the increased rewards from successful exclusion.⁵³

64. As a result of this increase in exclusionary conduct, rival carriers will be injured and will become less formidable competitors to the ILECs than they otherwise would.

⁵² SBC might argue that the merger reduces the amount of exclusion in that the merger would lead SBC to stop following an exclusionary policy towards Ameritech in markets in which they compete (such as the interexchange market), and vice versa. This could be a beneficial effect of the merger. However, it should not be given much weight by policy makers for two reasons. First, it will be offset by the increased exclusion of other competitors. Second, it would turn policy on its head to reward an ILEC's exclusionary conduct by permitting it to acquire its victims. This policy would increase SBC's incentives to exclude other rivals even more intensely because doing so would increase its ability to exclude others as well as lower the cost of acquiring them.

⁵³ Our analysis demonstrates that the merger increases SBC's benefits of exclusion as a result of internalizing the anticompetitive benefits that spillover to Ameritech, and vice versa. As benefits increase, SBC's benefit-cost balance likely will lead it to expand its efforts to exclude rivals. In principle, these increased benefits could be offset by increased regulatory sanctions in the event that exclusion is detected. However, state regulators in (say) Texas are unlikely to bring sanctions against SBC for exclusionary conduct towards CLECs or CSCs in (say) Illinois or Connecticut. Nor has the Commission shown any inclination to increase regulatory sanctions in response to mergers. Moreover, even if this scenario were plausible, there are offsetting effects. In particular, SBC may have economies of scope in defending itself from such charges in multiple state proceedings. And, even if there is a chance of sanctioning SBC, entrants may not be willing to wait around at a disadvantage for the outcome of the proceedings. In any case, the whole point of encouraging CLEC and CSC entry is to reduce the need for regulation over time; it is not to expand the need for regulation by permitting mergers that enhance the ILECs'

Consumers also will be harmed as competition is weakened. Service prices likely will be higher, and qualities and choices will be lower, leading to a reduced level of consumer welfare. To the extent that the disadvantaged competitors have differentiated products or would have lower costs or higher quality than the ILECs in the absence of discrimination, efficiency will be reduced and consumer harm will be further magnified.

65. The merger of SBC and Ameritech also will increase their *ability* to engage in exclusionary conduct that raises rivals' costs in three ways.⁵⁴ First, the regulators will no longer be able to monitor, detect, and prove the existence of exclusionary conduct by SBC by using Ameritech's conduct as a benchmark, or vice versa. Second, after the merger, SBC and Ameritech may gain the ability to coordinate and rationalize their exclusionary conduct to make detection and proof more difficult.⁵⁵ By controlling both ends of access, the integrated company may be better able to evade regulatory oversight of the quality of the access it provides by better rationalizing its exclusionary tactics.

incentives to exclude.

⁵⁴ In addition to the issues discussed here, the increased *incentive* to exclude discussed already can be stated as an increased *ability* to exclude. If one treats the merger as SBC acquiring Ameritech, then SBC gains an increased *ability* to exclude SBC's interexchange rivals by raising their costs of interconnecting to the Ameritech local exchange network. In the previous paragraph, we treated these effects as an increase in Ameritech's incentive to exclude, rather than as an increase in SBC's ability to exclude. Regardless of how it is stated, the effect is the same. Rivals' costs will be raised, or their service quality reduced, leading to reduced competition in the interexchange market.

⁵⁵ While SBC and Ameritech emphasize the possible sharing of "best practices" post-merger, they may well share "worst practices" (from a public interest perspective) too.

Finally, SBC may benefit from economies of scope in fighting regulatory battles in multiple state forums.⁵⁶

B. The Sources of Anticompetitive Spillovers

66. Because of their importance in understanding how the proposed merger would increase SBC and Ameritech's incentives to engage in exclusionary conduct, we examine the cross-market linkages that give rise to anticompetitive spillovers. We will then develop the logic more fully using graphical and algebraic analysis.

1. Exclusion of Rival IXC's

67. Competing carriers' dependence on multiple ILECs is most easily seen in the case of IXC's, so we begin with them. An IXC providing traffic among regions requires an interconnection at both ends of the call. If the ILEC providing terminating access to the IXC denies or degrades that access, then an ILEC competing with the IXC to offer long distance service at the originating end also will benefit. Thus, in the interexchange market, an exclusionary access policy by one ILEC towards IXC's will spill over and benefit other ILECs in other regions.

68. Consider the case of foreclosing efficient interconnection to rival IXC's. IXC competitors require access to the local exchange network from two regions, the region in

⁵⁶ In addition, to the extent that state proceedings do not take place simultaneously, SBC can gain a reputation among entrants as a firm that excludes rivals, and thereby may deter the entrants from attempting to enter to begin with, or it may slow down their entry plans.

which the call is originated and the region in which the call is terminated. In most cases, IXC's will have to purchase access from the respective ILEC. As a result, foreclosing the IXC's from efficient interconnection in its region will raise rivals' costs and thus may give the ILEC in that region market power in the downstream interexchange market in that region. This market power may be exercised with a higher interexchange market share, higher price or some combination of the two. Moreover, the IXC competitors in Region 2, whose calls originate in Region 2 and terminate in Region 1, are disadvantaged by inferior terminating access in Region 1. It follows that, if ILEC 1 forecloses the IXC competitors in Region 2 from efficient terminating access in Region 1, then those IXC's also will be placed at a competitive disadvantage in Region 2, providing an anticompetitive benefit to ILEC 2. Exclusion of the IXC competitors by ILEC 2 provides an analogous benefit to ILEC 1.

2. Exclusion of rival CLECs

69. Exclusionary access policy by one ILEC directed toward multi-market CLECs can also benefit other ILECs. This will occur when harming the CLECs in one region weakens their ability or incentives to compete in another region. That is, if a CLEC suffers lower quality or higher costs, reduced market share, and lower profitability in one region, those factors will reduce the likelihood that it enters other regions as well. Even if the exclusionary conduct in one market does not deter CLECs' entry altogether, it may lead the CLECs to enter at a lower scale, with higher prices, or reduced service offerings. Either way, the CLECs will become less of a competitive threat to both ILECs.

70. These cross-region effects can arise for several reasons. First, even if the multiple local markets are distinct, there may be common research, product development, supporting software development, and promotional costs for a CLEC entrant.⁵⁷ In deciding whether to enter the business at all, a potential carrier will evaluate its overall expected profits for entry. Thus, the potential entrant would take the sum of its expected market-specific profits across all of the areas into which it is contemplating entering and compare this sum with the development and other common costs. If the market-specific profits sum to less than the required return on their capital and common costs, then entry will be unattractive. Thus, an ILEC's actions that reduce the profitability of entry in one region can lower the likelihood of entry in all regions.

71. Exclusionary actions also may reduce the speed with which a CLEC finds it profitable to enter or the extent to which a CLEC finds it profitable to make investments that improve its service quality. Suppose that the exclusion reduces the potential customer base in the first region for a CLEC. That lower potential customer base means that its rate of return on investments will be lowered. For example, suppose that a contemplated investment in product quality would allow a CLEC to increase the number of people that would be attracted to its service. If its potential customer base is reduced by exclusionary conduct in the first region, then fewer new customers can be obtained and it

⁵⁷ For example, SBC itself emphasizes in its filing that there are significant development and roll-out costs for local entry that can be spread across markets if an entrant pursues a

would earn a lower return on that investment. As a result, the investment may not earn a large enough return to justify undertaking it. In that case, potential new customers in the second region also would be denied the quality improvement, so the CLEC would not be able to expand there either. Thus, the ILEC in the second region will gain from the exclusionary conduct of the ILEC in the first region.

72. There also may be economies of scope associated with offering service in multiple local markets that affect variable costs (*e.g.*, reduced costs of obtaining certain pieces of equipment whose use varies with the number of subscribers or calling volume). In this case, exclusion that reduces the entrant's volume in one market increases the entrant's variable costs in the other markets in which it is competing.

3. Exclusion of rival CSCs

73. Exclusionary access policy by one ILEC directed towards CSCs can weaken them across other regions for the reasons identified for both IXCs and CLECs above. First, as with IXCs, a CSC may need terminating access from multiple ILECs. Second, a CSC may be offering advanced services that are subject to service-specific network effects (*i.e.*, each service derives value from the fact that it is offered in a lot of places and allows many end users to communicate with one another). Exclusionary tactics in one region can weaken a CSC's ability to sell its entire suite of combined services in other regions

multi-market strategy. See Affidavit of James S. Kahan, July 20, 1998.

by reducing customers' perceived quality of the advanced services that are included in that suite. These effects arise when on-net features do not extend to off-net communications. Third, as with CLECs, even if the multiple local markets are distinct, there may be common fixed costs across markets, joint investment decisions, or other sources of economies of scope.

74. Sprint ION is an example of a combined service that exhibits such multi-market dependence. Denying appropriate collocation, integration of OSS, and other tactics will weaken Sprint's ability to offer its ION suite of combined services. The full roll-out of Sprint ION will trigger the need to spend hundreds of millions of dollars for billing systems and other software platforms, centralized databases, centralized network engineering and monitoring facilities, and national advertising.⁵⁸ For example, just the software to run the Sprint Service Nodes has an estimated cost of \$100 million.⁵⁹ Multi-market effects also arise because Sprint will have to bear higher costs to carry traffic for which one end is forced to either originate or terminate off of the Sprint ION network as a result of SBC exclusionary conduct.⁶⁰

⁵⁸ These common costs are discussed in much greater detail in the Affidavit of Gene Agee, October 14, 1998 ("*Agee Affidavit*") at 7-9.

⁵⁹ *Agee Affidavit* at 8.

⁶⁰ These costs arise from the need to translate the transmission. See *Agee Affidavit* at 12.

C. Graphical Analysis

75. The incentives to pursue such a vertical foreclosure strategy—and the ways in which the merger increase the incentives to exclude—can be illustrated graphically. The impact of the merger in internalizing anticompetitive spillovers is illustrated in Figure 1. The top diagram shows the profitability to ILEC 1 in its downstream market from increasing the effective cost of competing CLECs, IXCs or CSCs. Profits are maximized when ILEC 1's marginal benefits of exclusion equal the marginal costs. Non-price exclusionary access conduct is costly to the ILEC in terms of the likelihood of being interdicted and penalized by the regulators, the resource costs of avoiding detection, and the possible efficiency losses in the ILEC's own operation caused by foreclosing rivals. Absent a merger, ILEC 1 will choose to set rivals' access cost at the level at which its profits are maximized (point C* in the diagram).

76. The middle panel shows the spillover profits achieved by ILEC 2 when ILEC 1 increases the terminating access costs (or degrades the access quality) of carriers that compete with ILEC 2. ILEC 2's profits rise from the increase in its rivals' access costs because ILEC 2 becomes more attractive to consumers relative to its disadvantaged rivals and because ILEC 2 does not share in the costs of exclusion carried out by ILEC 1.⁶¹ Before the merger, ILEC 1 would ignore these anticompetitive benefits to ILEC 2.

⁶¹ This figure reflects the fact that state regulators in one state are unlikely to bring sanctions against SBC for exclusionary conduct towards CLECs or CSCs in another state.

However, after the merger, ILEC 1 would take the profit spillover to ILEC 2 into account in deciding the level of costs to inflict on competitors. The bottom panel shows the combined profits of ILEC 1 and ILEC 2 as a function of the discriminatory treatment of competitors in Region 1. Joint profits reach a maximum at a higher cost level (C^{**} in the diagram) than before the merger. This is because the benefits to ILEC 2 are taken into account by the merged entity, whereas they were not before the merger.

77. The merger will increase SBC and Ameritech's incentives and ability to exclude rivals. If rivals require the inputs from multiple ILECs in order to compete effectively, then the merger of two ILECs increases the incentives to foreclose access to interconnection and access inputs, by allowing each ILEC to "internalize" the benefit it gives to the other ILEC by foreclosing access. This overcomes a coordination problem that two independent ILECs would otherwise have.

78. This graphical analysis illustrates how a merger between two ILECs increases the incentives of each ILEC to pursue an exclusionary access policy. Thus, we would expect that a merger would lead the ILECs to attempt a greater degree of exclusion than they each would attempt independently before the merger. Coupled with the fact that their ability to exclude also increases, the conclusion is clear: A merger between SBC and Ameritech would increase the magnitude of the exclusionary access problem and thereby harm consumers and competition.

D. Quantifying the Impact of the Merger on SBC and Ameritech's Incentives to Exclude

79. In this part we analyze the magnitude of these anticompetitive spillovers. The effect of the merger on internalizing these spillovers can be gauged by extending the analysis of the *relative-margin* and *price-increase incentives* discussed earlier. We illustrate the methodology by extending the *relative-margin incentive*. This incentive is based on the assumption that an ILEC benefiting from exclusionary conduct reacts to the weakening of competition by holding its retail service prices constant and increasing its retail output levels.

80. Suppose that ILEC 1 is choosing its level of exclusionary behavior before the merger. ILEC 1 balances the value of these increased retail sales against the foregone profits from lost sales of access services to other carriers. Recall from our earlier analysis that ILEC 1 earns expected net benefits from exclusionary behavior d equal to

$$\Delta Q^r(d) \times m^r - \Delta Q^a(d) \times m^a - S(d) . \quad (\text{eqn. 5})$$

81. Now consider ILEC 2, which is affected by competitive spillovers from ILEC 1's exclusionary behavior. Suppose that these spillovers permit ILEC 2 to increase its retail output by $\sigma \times \Delta Q^r(d)$ units. Suppose also that ILEC 2's sales of access services to other carriers fall by $\sigma \times \Delta Q^a(d)$ as the result of the exclusionary behavior by ILEC 1. In this case, the change in ILEC 2's profits is

$$\sigma \times \{ \Delta Q^r(d) \times m^r - \Delta Q^a(d) \times m^a \} . \quad (\text{eqn. 6})$$

82. In choosing how much exclusionary conduct to undertake in ILEC 1's region, the

merged entity would aggregate the effects in both Equations (5) and (6). Assuming that the retail and access margins are identical in both geographic markets, the total gain would be

$$(1+\sigma) \times \{ \Delta Q^r(d) \times m^r - \Delta Q^a(d) \times m^a \} - S(d) .^{62} \quad (\text{eqn. 7})$$

The merged entity's gross incentives to engage in exclusionary conduct—which are balanced against the threat of regulatory sanctions—are 100σ percent larger than those of the independent ILEC 1 before the merger. A similar analysis can be carried out with respect to the incentives to engage in exclusionary conduct in ILEC 2's region.

83. The magnitude of the spillover parameter σ depends on the target and the type of exclusionary access conduct undertaken by the ILECs. With respect to CLEC entry, exclusionary conduct by one ILEC can benefit the other ILECs in a number of ways. For example, because of shared development, roll-out, and upgrade costs and because of other economies of scope, exclusionary conduct that deters entry and expansion in one region can lead to a comparable degree of deterrence in the other region by reducing the overall profitability of a CLEC's multi-market entry or expansion strategy, with the result that the CLEC is either slowed or deterred from entering the other region. This type of deterrence could suggest a spillover rate of around unity for each of the merging ILECs, if

⁶² A similar incremental net benefit can be derived with respect to the increased-price incentives. In principle, it is also possible to mix the incentives. The benefit to the one ILEC could involve increased output whereas the benefits to the other ILEC could involve

the expected sales of the CLEC entrants were the same in both regions and the exclusion deterred entry or expansion in both regions.⁶³ In this case, the merger would double the gross incentive to exclude rivals.

84. More extreme values of σ also could arise from this type of entry deterrence. For example, suppose that exclusionary conduct in one region reduces the number of CLEC subscribers in that region by a small amount and that there are shared development costs that must be recovered from product sales in both regions. On the one hand, this could lead to no deterrence effects in the other region at all, if the economics of entry in the other region remain profitable, in which case σ would equal zero. On the other hand, a small reduction in the number of subscribers in the first region could tip the profitability of entry in the other region to be negative and thus deter entry altogether in that second region. In that case, σ would be very large.

85. Similar considerations arise when the targets of the exclusionary conduct are CSCs. In the case of CSCs, there also is an interexchange component, which creates another mechanism for spillovers. Moreover, when on-net features do not extend to off-net communications at equal cost, exclusionary tactics in one region can weaken a CSC's ability to sell its suite of combined services in other regions by raising the CSC's costs

higher prices.

⁶³ If the CLECs would get more customers in the second ILEC's region absent the exclusion, say because that region is larger, then the σ would exceed unity. If the second

and/or reducing customers' perceived quality of its service suite. These effects would tend to increase the value of σ .

86. Exclusionary conduct directed at plain vanilla IXC's also can have a spillover effect. As discussed earlier, exclusionary conduct by SBC against IXC's in its region will raise their costs. This will disadvantage those IXC's in competing against Ameritech for interexchange customers in its region. In this case, σ would depend on the fraction of the interexchange traffic of Ameritech's rivals that flows from Ameritech's region to SBC's.⁶⁴

VI. THE SBC-AMERITECH MERGER WILL WEAKEN REGULATORS' ABILITY TO LIMIT EXCLUSIONARY CONDUCT BY OTHER ILECS

87. The proposed merger's impact on SBC and Ameritech's incentives to engage in exclusionary behavior can have harmful effects on competition and consumer welfare that go beyond the combined region of the two merging carriers. These broader effects can arise because the Commission and state regulators may rely on inter-firm comparisons to limit the exercise of ILEC market power in the provision of access. The proposed merger would weaken the ability of regulators to use benchmarking to ensure appropriate access arrangements. 87. As already discussed, the proposed merger would eliminate

region were smaller, then the σ would be less than unity.

⁶⁴ It is our understanding that 16.8 percent of all Sprint interexchange minutes that originate in Ameritech's region terminate in SBC's region.

Ameritech as a benchmark for SBC and vice versa. By reducing the number of benchmarks, the efficacy of the benchmarking process is reduced. This loss of benchmarks will be exacerbated if the Bell Atlantic/Nynex acquisition of GTE is permitted to proceed. Indeed, if there are few enough major ILECs remaining, they may have the incentives and ability to reach a tacit understanding to reduce their cooperation with rival carriers, so that no ILEC serves as a useful competitive benchmark.

88. The fact that the merger enhances SBC and Ameritech's joint incentives to carry out exclusionary access policies creates an additional benchmarking problem.⁶⁵ Suppose that the Commission were to approve the merger and then relied on SBC's conduct as a benchmark against which to grade other ILECs' access policies. Because, as discussed above, the merger would increase SBC's unilateral incentive to discriminate against rivals, the merged entity can be expected to offer less competitive access arrangements. After the merger, SBC and Ameritech's conduct will not reflect best practice, but rather the outcome of a more discriminating ILEC than before the merger. Hence, this conduct will become a less useful basis of comparison in assessing the competitiveness of other ILECs' access conduct. That is, if the other ILECs follow the same practices as SBC, that conduct does not imply that they are acting competitively, since SBC has an

⁶⁵ A variety of benchmarking issues are discussed in detail in the Declaration of Joseph Farrell and Bridger M. Mitchell, "Benchmarking and the Effects of ILEC Mergers," October 14, 1998. Our focus here is on how the proposed merger would reduce the value of benchmarks based on the post-merger conduct of SBC and Ameritech.

enhanced incentive to exclude. The best benchmark is a firm with no incentives to exclude, not the opposite.

89. By reducing the value of SBC and Ameritech as competitive benchmarks, the overall anticompetitive effects of the merger will be enhanced beyond the SBC-Ameritech regions. Not only will SBC and Ameritech increase their magnitude of exclusionary conduct, the loss of the benchmarks also will permit other ILECs such as Bell Atlantic/Nynex to increase the magnitude of their exclusionary conduct as well.^{66, 67}

VII. CONCLUSION

90. One response to the increased threat of discrimination and foreclosure from the proposed merger might be to increase regulatory oversight. However, regulatory authorities are unable to prevent this discrimination and foreclosure very effectively. First, as discussed earlier, regulation is imperfect at detecting and correcting such conduct, particularly for new and innovative forms of access. Second, the potential for continued consolidation of the large ILECs will further reduce regulators' ability to

⁶⁶ When Bell Atlantic/Nynex chooses the magnitude of its profit-maximizing exclusionary conduct, it will have the incentive to take into account the likelihood that it is sanctioned by regulators. That likelihood is reduced if SBC and Ameritech merge since its post-merger incentives to exclude are increased. Thus, Bell Atlantic/Nynex will have an increased incentive to exclude because the SBC/Ameritech merger decreases Bell Atlantic/Nynex's risk of a sanction.

⁶⁷ Of course, this effect flows both ways. If the proposed merger of Bell Atlantic and GTE is permitted to proceed, the adverse effects of SBC's proposed merger with Ameritech will be magnified by the loss of Bell Atlantic and GTE as independent benchmarks for

exercise effective oversight. For example, if their merger is approved, Bell Atlantic and GTE also would be lost as independent benchmarks for SBC and Ameritech. Third, because a merged firm becomes a poor competitive benchmark, the anticompetitive effects of each merger extend beyond its region into other regions.

91. If it is allowed to proceed, the proposed merger of SBC and Ameritech will increase the incidence of exclusionary conduct and regulation will be unable to prevent it. The result will be to hinder the development of local competition and to slow the introduction of innovative new services for both local and long distance. For these reasons, the proposed merger of SBC and Ameritech poses a threat to the public interest.

VIII. APPENDIX

92. In this appendix, we provide details of the calculations underlying the access market and retail market margins presented in the text of Part IV.B.3.⁶⁸

A. The Access Margin⁶⁹

93. Given the CSC's business model described in the text, the (operating) margin per customer earned by the ILEC in the access market is the price of an unbundled loop less

SBC and others.

⁶⁸ In the footnotes, we relate our assumptions to rough estimates of the corresponding figures for actual carriers. These estimates are intended solely to demonstrate that the figures in the hypothetical example are plausible.

⁶⁹ As discussed in the text, we find it clearer to explain the exclusion scenario by including the profits from terminating access in the retail margin. This choice of labeling does not

its cost. We assume that the price is \$14.50,⁷⁰ and the long-run incremental cost is \$12.00.⁷¹ Thus, in its capacity as a wholesaler of loops, our hypothetical ILEC stands to lose \$2.50 per month in the long run when the CSC purchases one fewer unbundled loop from the ILEC. In the light of the fact that loop costs are largely sunk in the short run, short-run marginal costs are close to zero, and the short-run access margin is close to the wholesale price of \$14.50. The charge for collocation in a given central office is assumed to be insensitive to the number of customers and their usage levels, and thus it is not affected by ILEC exclusionary actions that slow the growth of the CSC but do not fully deter it.

B. The Retail Margin

94. Current prices of the individual elements of combined service sold to a single-line business customer include: the monthly fee for local service and usage charges for local

affect our conclusions.

⁷⁰ Taking a weighted average of the default proxy ceilings set by the FCC in its Local Competition Order, (*In the Matter of Implementation of the Local Competition Provisions in the Telecommunications Act of 1996*, CC Docket No. 96-98, *First Report and Order*, released August 8, 1996, Appendix D) with the number of single-line business lines taken from Hatfield Model version 5.0a (*The Hatfield Model*, Hatfield Associates Inc., Boulder, Colorado, January 27, 1998) used as the weighting factor, one obtains an estimated wholesale price of unbundled loops of \$14.22.

⁷¹ This is the estimated cost of an unbundled loop obtained by taking a weighted average of the Hatfield Model estimates for 49 states, using single-line businesses as the weighting factor.

calls (assumed to be \$32.00⁷²); the Subscriber Line Charge (assumed to be \$3.50⁷³); usage charges for long distance calls (assumed to average \$46.50 per month⁷⁴), and terminating access on long distance calls originating out of region (assumed to be \$7.50⁷⁵). Summing

⁷² In 1996, the national average monthly rate for a single line business for local service, including the cost of 200 messages per month if flat rates were not available, was \$32.54 (Federal Communications Commission, *Statistics of Common Carriers, 1996, (SOCC)* at Table 8.5).

⁷³ In 1996, the average single-line business Subscriber Line Charge was \$3.56. (*SOCC* at Table 8.5).

⁷⁴ This hypothetical figure can be compared with actual data. InterLATA and intraLATA revenues are separately estimated as follows. (1) InterLATA Revenues. Total (interstate plus intrastate) InterLATA originating and terminating billed access minutes are obtained from Table 2-6, 1996 *SOCC*, and divided by 2 to obtain long distance minutes. The number of business, public payphone, and residential lines was obtained from Table 2-5, 1996 *SOCC*. The long distance minutes were apportioned to business and residential customers so that the average business line (defined to include single-line and multiline businesses and public payphones) had twice as many interLATA minutes per line per month as the average residential line. (Bridger Mitchell, *Incremental Costs of Telephone Access and Local Use*, Rand Report R-3909-ICTF, RAND Corporation, Santa Monica, at 53, cites evidence that business long distance use per line is twice residential use.) Finally, the monthly minutes of use per business line was multiplied by \$0.116, the average revenue per minute for direct dialed interstate calls (*Trends in Telephone Service*, Federal Communications Commission, Released January, 1998, Table 14.3) to obtain interLATA revenue per line of \$28.15. (2) IntraLATA Revenues. Mitchell's study (*op cit*) of California customers contained data on intraLATA revenues per line for business and residential customers. His data showed that single-line business customers had average intraLATA toll bills of \$18.50, for 103 minutes of use, and an average revenue per minute of \$0.18.

⁷⁵ The number of actual interstate toll minutes originating outside SBC's region were obtained from the Hatfield Model 5.0a and multiplied by the fraction of SBC's terminating minutes that originate outside SBC's region (Source: Sprint proprietary data). These minutes are then apportioned to single business lines, assuming as before that businesses have twice the usage per line as residential users do. The number of business and residential lines is obtained from the Hatfield Model. The revenue is obtained by multiplying these business minutes by an access charge of \$0.03 per minute. (1997 *Monitoring Report*, Federal-State Joint Board, Table 5-12, access charge per conversation minute divided by 2). This procedure yields an estimate of \$7.34 per month per line.

these revenue components, the hypothetical ILEC earns an average of \$89.50 per month per customer purchasing its local and long distance services.⁷⁶

95. To compute the retail margin, we subtract costs from revenues. The ILEC's costs of providing combined service include: the network cost per line of local service, local calling, and access to long distance POPs (assumed to be \$16.50⁷⁷), the cost of customer service (assumed to be \$8.00 per line⁷⁸), the cost of long distance calls (assumed to be \$7.00⁷⁹) and the cost of terminating calls from the ILEC's long distance subscribers to subscribers served by other interexchange access providers (assumed to be \$6.00⁸⁰). The

⁷⁶ This number is likely to understate the actual average revenues that an ILEC would earn because it ignores revenues from vertical services.

⁷⁷ This figure can be compared with the long-run incremental cost of local exchange and exchange access service reported in the default runs of the Hatfield Model. The model reports the cost per line of the unbundled network elements required to provide local exchange and exchange access service for the 50 states. The (single-business line) weighted average of this cost across 49 states and Washington D.C. is \$16.34 per line, per month. The computed costs included the cost of a network connection, local usage and access to an IXC's POP.

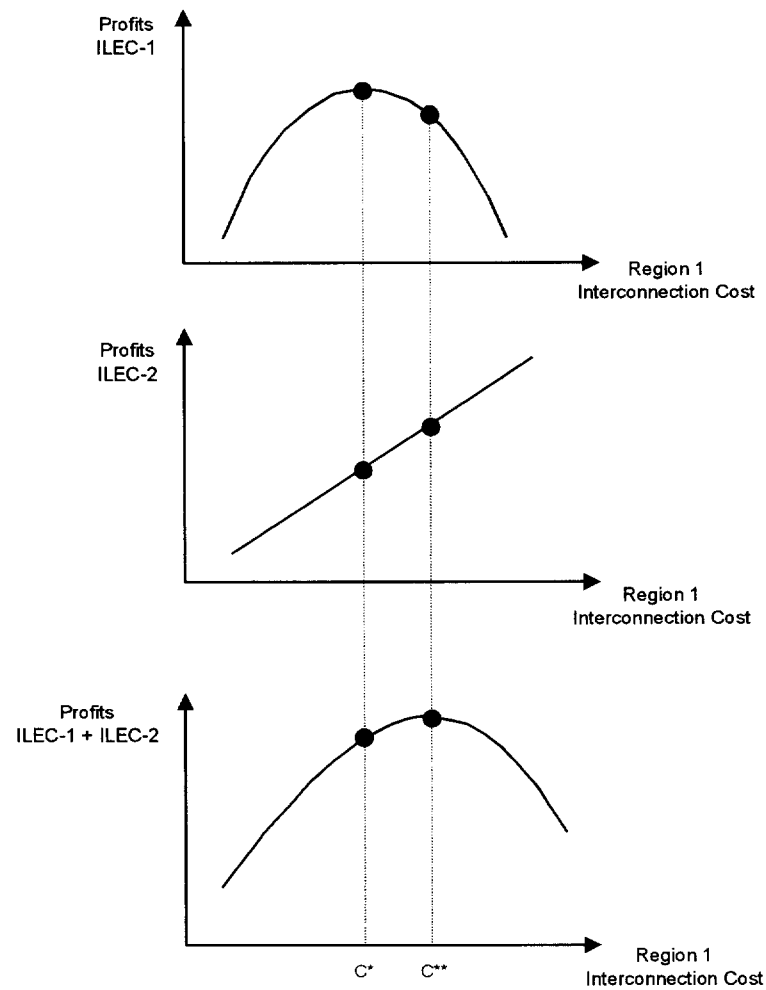
⁷⁸ The Commission estimated that the avoided costs of an ILEC that loses a customer to a reseller of local service is 17-25 percent of the retail price. (*Implementation of the Local Competition Provisions in the Telecommunications Act of 1996*, First Report and Order, CC Docket Number 96-98, rel. August 6, 1998, at ¶933). Applying these percentages to the average retail price of local service, we obtain customer care costs of \$5.53 to \$8.14 per line per month.

⁷⁹ The average cost of long-distance service for an actual ILEC can be estimated by multiplying total long distance minutes used to calculate long distance revenue by \$0.02 per minute (*i.e.*, 350 minutes x \$0.02 = \$7.00). The unit cost was obtained from Robert Crandall and Leonard Waverman, *Talk is Cheap*, Brookings, 1996, at 92.

⁸⁰ ILECs' actual average costs of purchasing terminating access from other networks can be estimated using a process similar to that used to compute ILEC's terminating revenue above. The resulting figure is \$5.89 per line per month.

total costs of providing local and long-distance services combined service in our hypothetical example is thus \$37.50 per month, per single line business subscriber. The resulting retail margin is $\$52.00 = \$89.50 - \$37.50$.

FIGURE 1: EFFECT OF MERGER ON INCENTIVES



IX. EXHIBIT 1: CURRICULUM VITAE OF MICHAEL L. KATZ

ADDRESS

The Tilden Group, LLC
5335 College Avenue
Oakland, CA 94618

EMPLOYMENT

July 1987 to present **Arnold Professor of Business Administration**
Director, Center for Telecommunications and Digital Convergence
University of California at Berkeley

Joint appointment in the Economics Department and School of Business. Initial appointment as an associate professor July 1987. Promoted to full professor July 1989. Granted an endowed chair July 1995. Research on competitive strategy in systems markets, strategic standard setting, vertical integration, strategic alliances, and cooperative research and development. Chaired Strategic Planning Committee, Policy and Planning Committee, and the Economic Analysis and Policy Group. Teach MBA courses in business strategy and microeconomics, and doctoral courses in accounting and microeconomics. Author of economics textbook.

January 1994 to **Chief Economist**

January 1996 **Federal Communications Commission**

Responsible for integrating economic analysis into all aspects of Commission policy making. Reported directly to the Chairman of the Commission. Formulated and implemented regulatory policies for all industries under Commission jurisdiction, including cable and broadcast television, and local, long distance, and wireless telephony. Managed teams of lawyers and economists to design regulatory policies and procedures. Significantly strengthened Commission's ability to gather industry data and conduct empirical studies. Extensive public speaking to specialist and general audiences in the United States and abroad.

July 1981 to **Assistant Professor of Economics**

June 1987 **Princeton University**

Research on sophisticated pricing, standards development, cooperative R&D, and intellectual property licensing. Served as Assistant Director of Graduate Studies. Taught courses in microeconomics, industrial organization, and antitrust and regulation to undergraduate and doctoral students.

EDUCATION

D.Phil. 1982

Oxford University

Doctorate in Economics. Thesis on market segmentation and sophisticated pricing strategies.

A.B. *summa cum laude* 1978

Harvard University

As an undergraduate, completed all courses and general examinations for doctorate in economics.

AWARDS AND HONORS

Chairman's Special Achievement Award, Federal Communications Commission, 1996.

The Earl F. Cheit Outstanding Teaching Award, Berkeley, 1992-1993 and 1988-1989. Honorable Mention, 1996-1997.

Alfred P. Sloan Research Fellow, 1985-1988.

National Science Foundation Graduate Fellow, 1978-1981.

John H. Williams Prize (awarded to the Harvard College student graduating in Economics with the best overall record), 1978.

National Merit Scholar, 1975-1976.

GRANTS

Berkeley Committee on Research Grant, 1996-1997.

Berkeley Program in Finance Research Grant, 1990.

Researcher, Pew Foundation grant: "Integrating Economics and National Security," 1987-1990.

Principal Investigator, National Science Foundation grants:

"A More Complete View of Incomplete Contracts," joint with Benjamin E. Hermalin, 1991-1993.

"Game-Playing Agents and the Use of Contracts as Precommitments," 1988-1989.

"The Analysis of Intermediate Goods Markets: Self-Supply and Demand Interdependence," 1985-1986.

"Imperfectly Competitive Models of Screening and Product Compatibility," 1983-1984.

"Screening and Imperfect Competition Among Multiproduct Firms," 1982.

PROFESSIONAL ACTIVITY

Coeditor of *Journal of Economics and Management Strategy*.

PUBLICATIONS

- "Multiplant Monopoly in a Spatial Market," *Bell Journal of Economics* Vol. 11, No. 2 (Autumn 1980).
- "Non-uniform Pricing, Output and Welfare Under Monopoly," *Review of Economic Studies* Vol. L, No. 160 (January 1983).
- "A General Analysis of the Averch-Johnson Effect," *Economic Letters* Vol. 11, No. 3 (1983).
- "The Socialization of Commodities," co-authored with L.S. Wilson, *Journal of Public Economics* Vol. 20, No. 3 (April 1983).
- "The Case for Freeing AT&T," co-authored with Robert D. Willig, *Regulation* (July/August 1983) and "Reply to Tobin and Wohlstetter," *Regulation* (November/December 1983).
- "Plea Bargaining and Social Welfare," co-authored with Gene M. Grossman, *American Economic Review* Vol. 73, No. 4 (September 1983).
- "Firm-Specific Differentiation and Competition Among Multiproduct Firms," *Journal of Business* Vol. 57, No. 1, Part 2 (January 1984).
- "Nonuniform Pricing with Unobservable Numbers of Purchases," *Review of Economic Studies* Vol. LI (July 1984).
- "Price Discrimination and Monopolistic Competition," *Econometrica* Vol. 52, No. 6 (November 1984).
- "Tax Analysis in an Oligopoly Model," co-authored with Harvey S. Rosen, *Public Finance Quarterly* Vol. 13, No. 1 (January 1985).
- "Network Externalities, Competition, and Compatibility," co-authored with Carl Shapiro, *American Economic Review* Vol. 75, No. 3 (June 1985).
- "On the Licensing of Innovations," co-authored with Carl Shapiro, *Rand Journal of Economics* Vol. 16, No. 4 (Winter 1985).
- "Consumer Shopping Behavior in the Retail Coffee Market," co-authored with Carl Shapiro, in *Empirical Approaches to Consumer Protection* (1986).
- "Technology Adoption in the Presence of Network Externalities," co-authored with Carl Shapiro, *Journal of Political Economy* Vol. 94, No. 4 (August 1986).
- "How to License Intangible Property," co-authored with Carl Shapiro, *Quarterly Journal of Economics* Vol. CI (August 1986).

- "An Analysis of Cooperative Research and Development," *Rand Journal of Economics* Vol. 17, No. 4 (Winter 1986).
- "Product Compatibility Choice in a Market with Technological Progress," co-authored with Carl Shapiro, *Oxford Economic Papers: Special Issue on Industrial Organization* (November 1986).
- "The Welfare Effects of Third-Degree Price Discrimination in Intermediate Goods Markets," *American Economic Review* Vol. 77, No. 2 (March 1987).
- "R&D Rivalry with Licensing or Imitation," co-authored with Carl Shapiro, *American Economic Review* Vol. 77, No. 3 (June 1987).
- "Pricing Publicly Provided Goods and Services," in *The Theory of Taxation for Developing Countries*, D.M. Newbery and N.H. Stern (eds.), Washington, D.C.: World Bank (1987).
- "Vertical Contractual Relationships," in *The Handbook of Industrial Organization*, R. Schmalensee and R.D. Willig (eds.), Amsterdam: North Holland Publishing (1989).
- "R&D Cooperation and Competition," co-authored with Janusz A. Ordover, *Brookings Papers on Economic Activity: Microeconomics* (1990).
- Intermediate Microeconomics*, co-authored with Harvey S. Rosen, Burr Ridge, IL: Richard D. Irwin (1st ed. 1991, 2nd ed. 1994, 3rd ed. 1997).
- "Game-Playing Agents: Unobservable Contracts as Precommitments," *Rand Journal of Economics* Vol. 22, No. 3 (Autumn 1991).
- "Moral Hazard and Verifiability: The Effects of Renegotiation in Agency," co-authored with Benjamin E. Hermalin, *Econometrica* Vol. 59, No. 6 (November 1991).
- "Product Introduction with Network Externalities," co-authored with Carl Shapiro, *Journal of Industrial Economics* Vol. XL, No. 1 (March 1992).
- "Defense Procurement with Unverifiable Performance," co-authored with Benjamin E. Hermalin, in *Incentives in Procurement Contracting*, J. Leitzel and J. Tirole (eds.), Boulder, Colorado: Westview Press (1993).
- "Judicial Modification of Contracts Between Sophisticated Parties: A More Complete View of Incomplete Contracts and Their Breach," co-authored with Benjamin E. Hermalin, *Journal of Law, Economics, & Organization* Vol. 9, No. 2 (1993).
- "Systems Competition and Network Effects," co-authored with Carl Shapiro, *Journal of Economic Perspectives* Vol. 8, No. 2 (Spring 1994).

- "Joint Ventures as a Means of Assembling Complementary Inputs," *Group Decision and Negotiation* Vol. 4, No. 5 (September 1995). Also printed in *International Joint Ventures: Economic and Organizational Perspectives*.
- "Interconnecting Interoperable Systems: The Regulator's Perspective," co-authored with Gregory Rosston and Jeffrey Anspacher, *Information, Infrastructure and Policy*, Vol. 4, No. 4 (1995).
- "Interview with an Umpire," in *The Emerging World of Wireless Communications*, Annual Review of the Institute for Information Studies (1996).
- "An Analysis of Out-of-Wedlock Childbearing in the United States," co-authored with George Akerlof and Janet Yellen, *Quarterly Journal of Economics*, Vol. 111, No. 2 (May 1996).
- "Remarks on the Economic Implications of Convergence" *Industrial and Corporate Change*, Vol. 5, No. 4 (1996).
- "Regulation to Promote Competition: A first look at the FCC's implementation of the local competition provisions of the telecommunications act of 1996," co-authored with Gerald W. Brock, *Information Economics and Policy*, Vol. 9, No. 2 (1997).
- "Ongoing Reform of U.S. Telecommunications Policy," *European Economic Review*, Vol. 41 (1997).
- "Economic Efficiency, Public Policy, and the Pricing of Network Interconnection Under the Telecommunications Act of 1996," in *Interconnection and the Internet: Selected Papers from the 1996 Telecommunications Policy Research Conference*, G. Rosston and D. Waterman (eds.), Mahwah, New Jersey: Lawrence Erlbaum Associates, Publishers (1997).
- "Introduction: Convergence, Competition, and Regulation," co-authored with Glenn A. Woroch, *Industrial and Corporate Change*, Vol. 6, No. 4 (1997).
- "Public Policy and Private Investment in Advanced Telecommunications Infrastructure," co-authored with Joseph Farrell, *IEEE Communications Magazine* (July 1998).
- "Antitrust in Software Markets," co-authored with Carl Shapiro, Progress & Freedom Foundation conference volume (forthcoming).
- "The Effects of Antitrust and Intellectual Property Law on Compatibility and Innovation," co-authored with Joseph Farrell, *The Antitrust Bulletin* (forthcoming).

X. EXHIBIT 2: CURRICULUM VITAE OF STEVEN C. SALOP

ADDRESS Georgetown University Law Center Telephone: (202) 662-9095
600 New Jersey Ave., N.W.
Washington, D.C. 20001

PERSONAL Born, December 23, 1946; Married, three children; U.S. Citizen

FIELDS OF SPECIALIZATION

Industrial Organization, Competition and Antitrust Policy, Economics of Information, Law and Economics.

DEGREES Ph.D. Economics, Yale University, 1972
M. Phil. Economics, Yale University, 1972
B.A. University of Pennsylvania, 1968

AWARDS Summa Cum Laude, with Honors in Economics, University of Pennsylvania, 1968; Schoenbaum Prize in Economics, University of Pennsylvania, 1968; NSF Graduate Fellowship, 1968-72; Phi Beta Kappa, 1968.

EMPLOYMENT EXPERIENCE

Professor of Economics and Law, Georgetown University Law Center, 1982 - Present.

Guest Scholar, Brookings Institution, 1990-1991.

Visiting Professor, Massachusetts Institute of Technology, Spring 1986.

Visiting Interdisciplinary Professor, Georgetown University Law Center, July 1981-June 1982.

Associate Director for Special Projects, Bureau of Economics, Federal Trade Commission, January 1980-June 1981.

Assistant Director for Industry Analysis, Bureau of Economics, Federal Trade Commission, September 1979-January 1980.

Deputy Assistant Director for Consumer Protection, Bureau of Economics, Federal Trade Commission, December 1978-September 1979.

Economist, Division of Consumer Protection, Bureau of Economics, Federal Trade Commission. July 1978-December 1978.

Economist, Office of Economic Analysis, Civil Aeronautics Board, September 1977-July 1978.

Economist, Federal Reserve Board, July 1972-September 1977.

Adjunct Professor, Department of Economics, University of Pennsylvania, September 1977-June 1978.

Adjunct Professor, Department of Economics, George Washington University, September 1975-January 1978.

PROFESSIONAL ACTIVITIES

Advisory Committee, FTC Hearings on Global and Innovation-Based Competition (1996).

Associate Editor (Industrial Organization), *Journal of Economic Perspectives* (1987-1993).

ABA Antitrust Task Force on Second Requests (1990).

Advisory Board, Georgetown Project on Treble Damages (1986-1987).

Associate Editor, *Journal of Industrial Economics* (1983-1988).

Associate Editor, *International Journal of Industrial Organization* (1984-1989).

Secretary, Antitrust Section, American Association of Law Schools (1983-1984).

Memberships: American Economic Association, American Bar Association, Phi Beta Kappa.

Nominating Committee: American Economic Association, 1982.

Economics Editorial Advisor, *Journal of Consumer Research*, 1982.

OTHER ACTIVITIES

Board of Directors, Charles River Associates Incorporated.

Management Advisory Committee, La Leche League International.

Board of Trustees, The Lowell School (1989-1995).

HONORS AND AWARDS

NSF Graduate Fellowship, 1968-1972.

Graduated Summa cum Laude, with Honors in Economics, from the University of Pennsylvania, 1968.

Schoenbaum Prize in Economics, University of Pennsylvania, 1968.

Phi Beta Kappa, 1968.

PUBLICATIONS

Books

Strategy, Predation and Antitrust Analysis. Editor. Federal Trade Commission, 1981.

Consumer Post-Purchase Remedies. With H. Beales et al. Federal Trade Commission Staff Report,

1980.

Consumer Information Remedies. With L. Kantor et al. Federal Trade Commission Staff Report, 1979.

Articles

“Decision Theory and Antitrust Rules,” With C.F. Beckner III. *Antitrust Law Journal* (Forthcoming)

“You Keep On Knocking But You Can’t Come In: Evaluating Restrictions on Access Rules to Input Joint Ventures.” With D. Carlton. *Harvard Journal of Law and Technology* (1996)

“Evaluating Vertical Mergers: A Post-Chicago Approach.” With M. Riordan. *Antitrust Law Journal* (1995).

“Exclusionary Vertical Restraints: Has Economics Mattered?” *American Economic Review* (May 1992).

“An Economic Analysis of Copyright Collectives.” With S. Besen and S. Kirby. *Virginia Law Review* (1991).

“Competition Among Complements, and Intra-Network Competition.” With N. Economides. *Journal of Industrial Economics* (1992).

“Rowing Against the Tidewater: A Theory of Voting by Multi-Judge Panels.” With D. Post. *Georgetown University of Law Review* (1992).

“Evaluating Network Pricing Self-Regulation.” In *Electronic Services Networks: A Business and Public Policy Challenge of Electronic Shared Networks*, edited by Guerin-Calvert and Wildman, (1991).

“Equilibrium Vertical Foreclosure.” With J. Ordover and G. Saloner. *American Economic Review* (1990).

“Deregulating Self-Regulated Shared ATM Networks.” *Economics of Innovation and New Technology* (1990).

“Monopoly Power and Market Power in Antitrust Law.” With T. Krattenmaker and R. Lande. *Georgetown University Law Review* (1987).

“Analyzing Anticompetitive Exclusion.” With T. Krattenmaker. *Antitrust Law Journal* (1987).

“Cost-Raising Strategies.” With D. Scheffman. *Journal of Industrial Economics* (1987).

“Information, Welfare and Product Diversity.” With J. Stiglitz. In *Arrow and the Foundations of the Theory of Economic Policy*, edited by Feiwel et al., (1987).

“Antitrust Analysis of Exclusionary Rights: Raising Rivals’ Costs to Gain Power Over Price.” With T. Krattenmaker. *Yale Law Journal* (December 1986).

“Competition and Cooperation in the Market for Exclusionary Rights.” With T. Krattenmaker. *American Economic Review* (May 1986).

“Private Antitrust Litigation: Introduction and Framework.” With L. White. *Georgetown University Law Review* (1986).

“Economics of Private Antitrust Litigation.” With L. White. *Antitrust Law Journal* (1986). Reprinted

by the Senate Judiciary Committee.

“Quantifying the Competitive Effects of Production Joint Ventures.” With T. Bresnahan. *International Journal of Industrial Organization* (1986).

“Measuring Ease of Entry.” *Antitrust Bulletin* (1986).

“Firm-Specific Information, Product Differentiation and Industry Equilibrium.” With J. Perloff. In *Strategic Behavior and Industrial Competition*, edited by Morris et al., (1986).

“Practices that (Credibly) Facilitate Oligopoly Coordination.” In *New Developments in the Analysis of Market Structure*, edited by Stiglitz et al., (1986).

“Equilibrium with Product Differentiation.” With J. Perloff. *Review of Economic Studies* (January 1985).

“A Practical Guide to Merger Analysis.” With J. Simons. *Antitrust Bulletin* (Winter 1984).

“A Bidding Model of Special Interest Regulation: Raising Rivals' Costs in a Rent-Seeking Society.” With D. Scheffman and W. Schwartz. In *The Political Economy of Regulation: Private Interests in the Regulatory Process*, (1984).

“Judo Economics: Capacity Limitations and Coupon Competition.” With J. Gelman. *Bell Journal of Economics* (Autumn 1983).

“Raising Rivals' Cost.” With D. Scheffman. *American Economic Review* (May 1983).

“Defects in Disneyland: Quality Control as a Two-Part Tariff.” With A. Braverman and J.L. Guasch. *Review of Economic Studies* (January 1983).

“The Theory of Sales: A Simple Model of Equilibrium Price Dispersion with Identical Agents.” With J. Stiglitz. *American Economic Review* (December 1982).

“A Framework for Evaluating Consumer Information Regulation.” With H. Beales, M. Mazis, and R. Staelin. *Journal of Marketing* (Winter 1981).

“Efficient Regulation of Consumer Information.” With H. Beales and R. Craswell. *Journal of Law and Economics* (December 1981).

“Consumer Search and Public Policy.” With H. Beales, M. Mazis, and R. Staelin. *Journal of Consumer Research* (June 1981).

“Information Remedies for Consumer Protection.” With H. Beales and R. Craswell. *American Economic Review, Papers and Proceedings* (May 1981).

“Introduction.” In *Strategy, Predation and Antitrust Analysis*, edited by S.C. Salop. Federal Trade Commission, 1981.

“Strategic Entry Deterrence.” *American Economic Review, Papers and Proceedings* (May 1979).

“Monopolistic Competition with Outside Goods.” *Bell Journal* (Spring 1979).

“A Model of the Natural Rate of Unemployment.” *American Economic Review* (March 1979).

“Alternative Reservations Contracts.” Civil Aeronautics Board, 1978.

“Parables of Information Transmission in Markets.” In *The Effect of Information on Consumer and*

Market Behavior, edited by Mitchell, (1978).

"The Noisy Monopolist: Information, Price Dispersion and Price Discrimination." *Review of Economic Studies* (October 1977).

"Bargains and Ripoffs: A Model of Monopolistically Competitive Price Dispersion." With J. Stiglitz. *Review of Economic Studies* (October 1977).

"Self-Selection and Turnover in the Labor Market." With J. Salop. *Quarterly Journal of Economics* (November 1976).

"Information and Monopolistic Competition." *American Economic Review*, Papers and Proceedings (May 1976).

"Wage Differentials in a Dynamic Theory of the Firm." *Journal of Economic Theory* (August 1973).

"Systematic Job Search and Unemployment." *Review of Economic Studies* (April 1973).

Reviews and Comments

"Efficiencies in Dynamic Merger Analysis." Testimony at FTC Hearings on Global and Innovation-Based Competition (November 1995). A slightly revised version has been published as "Efficiencies in Dynamic Merger Analysis: Summary." With G. Roberts. *World Competition* (June 1996).

"Exclusionary Access Rules in Standards and Network Joint Ventures." Testimony at FTC Hearings on Global and Innovation-Based Competition (December 1995).

"Evaluating Vertical Mergers: Reply to Reiffen and Vita Comment." With M. Riordan. *Antitrust Law Journal* (1995).

"More Value for the Legal Dollar: A New Look at Attorney-Client Fees and Relationships." With R. Litan. *Judicature* (1994).

"Kodak as Post-Chicago Law and Economics," *CRA Perspectives*, April 1993. Reprinted in Texas Bar Association, *Antitrust and Business Litigation Bulletin* (November 1993).

"Vertical Foreclosure Without Commitment: Reply to Reiffen." With J. Ordover and G. Saloner. *American Economic Review* (1992).

"Antitrust Goes to College." With L. White. *Journal of Economic Perspectives* (Summer 1991).

"Analysis of Entry in the New Merger Guidelines." Brookings Papers on Economic Activity (1991).

"Mergers and Antitrust." *Journal of Economic Perspectives* (1987).

"Comment on Golbe and White, 'Time Series Analysis of Mergers.'" In Auerbach et al., *Mergers and Acquisitions*, NBER.

"Policy Implications of Conference Papers." In Auerbach et al., *Mergers and Acquisitions*, NBER.

"Evaluating Uncertain Evidence with Sir Thomas Bayes." *Journal of Economic Perspectives* (Summer 1987).

"Implications of the Georgetown Project for Treble Damages Reform." Senate Judiciary Committee, March 21, 1986.

“Policing Deceptive Advertising.” Serial No. 97-134, 97th Congress.

“Entry Barriers, Consumer Welfare and Antitrust Reform.” In Bock et al., *Antitrust and New Views of Microeconomics*. Conference Board, 1986.

“Buy American, Save Your Job?” In J. Tobin et al., *Macroeconomics, Prices and Quantities*. Brookings Institution, 1983.

“Selling Consumer Information.” With H. Beales. In J. Olson et al., *Advances in Consumer Research*, Vol. VII. 1980.

“Comment on R. Schmalensee, ‘On the Use of Economic Models in Antitrust.’” In O. Williamson et al., *Antitrust Law and Economics*, 1980.

“Review of K. Lancaster, ‘Variety, Equity and Efficiency,’” *Journal of Economic Literature*, 1980.



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